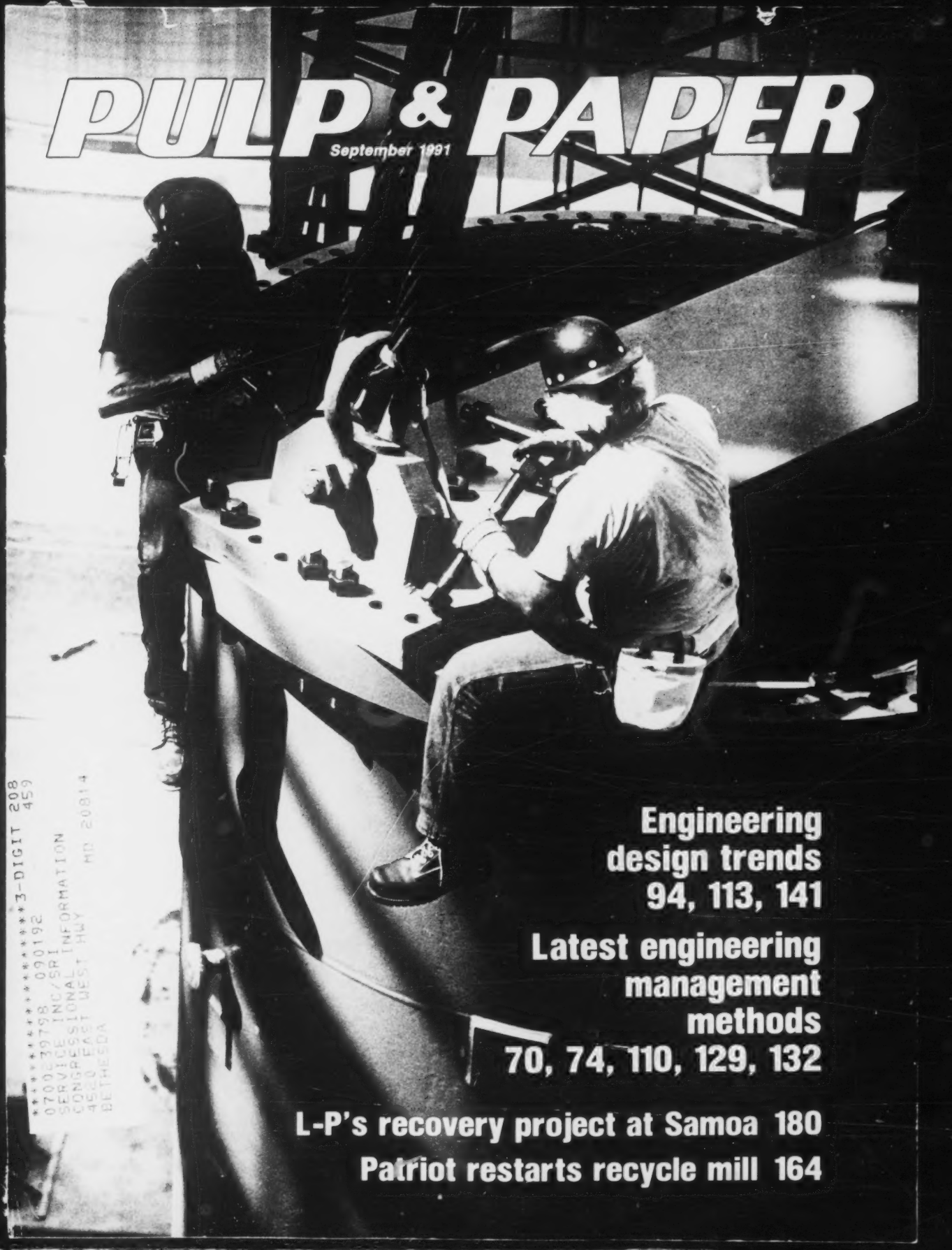
PULP & PAPER

September 1991



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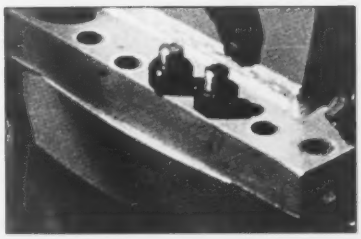
THE COVER

This issue focuses on the latest engineering design approaches for such process areas as stock preparation, brownstock washing, and oxygen supply. It also discusses techniques for improving engineering effectiveness, such as automation of engineering, procurement, and construction (EPC) projects. The cover photo was taken during the installation of a pressure diffuser at Leaf River Forest Products in New Augusta, Miss., (div. of Georgia-Pacific), part of an EPC project by Kamtech. The unit, started up November 1990, is a 1,430-a.d.-tpd Kamyr pressure diffuser, following the existing Kamyr digester, washing both hardwood and softwood pulps. (Photo by Tom Grow, courtesy of Kamyr Inc.)



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Atlanta: 2000 Powers Ferry Center, Suite 450 Marietta, Ga. 30067; (404) 952-1303; Fax (404) 933-0666
Chicago: 6160 N. Cicero Ave., Suite 122, Chicago, Ill. 60646; (312) 545-0700; Fax (312) 545-9994
San Francisco: 600 Harrison Street, San Francisco, Calif. 94107; (415) 905-2200; Telex 278273; Fax (415) 905-2240
New York: 370 Lexington Avenue, New York, N.Y. 10017; (212) 683-9294; Telex 220442; Fax (212) 725-0915
Etna, Maine: (207) 269-2494
Brussels: Chaussée de Charleroi 123a, Boite 5, B-1060, Brussels, Belgium

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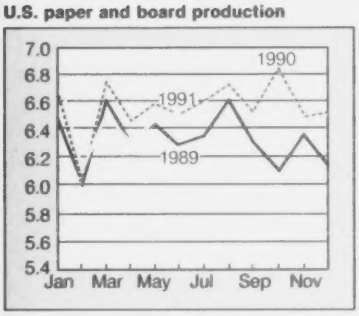
ABP

BPA

U.S. paper and board production



U.S. production of paper and paperboard totaled 6.5 million tons in June, unchanged from a year earlier, according to the American Paper Institute. The trend of production turned upward during the second quarter, raising the seasonally adjusted rate of production to 77.6 million tpy, up 3.6% from the March 1991 low and within 0.5% of last year's record total of 78.7 million tons. The biggest gains were in the paper grades, up 4.6% since March. The seasonally adjusted rate for paper during the first half was 38.4 million tpy, still down 1.6% from the year-ago period, while the rate for paperboard stood at 39.3 million tpy, up 0.6%.

Among major grades, containerboard output was up 1.0% thanks to a 12.8% increase in production for export. Newsprint production is up, but shipments from North American mills were off 7.1% in the first half due to continuing weakness in advertising markets. Printing and writing shipments were off 3.9% from last year, but the uncoated grades were trending upward in May and June.

Canadian newsprint shipments totaled 719,000 metric tons in June, down 10.6% from June 1990. Newsprint mills operated at 85% capacity, down from 89% last year. Woodpulp shipments climbed 10.1% to 717,000 tons, as operating rates rose from 84% last year to 89%. ■

	Latest month (000 short tons)		% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION[1]					
Newsprint	June	559	3.7	6,760	4.6
Uncoated groundwood (s)	June	142	0.0	1,685	-2.7
Coated paper (s)	June	594	73.2	7,022	-4.6
Uncoated free-sheet (s)	June	919	1.7	11,042	-3.5
Other printing/writing	June	117	-4.1	1,511	-6.6
Total packaging and other paper (s)	June	367	-6.9	4,473	-2.1
Tissue	June	474	-1.0	5,746	0.3
Total paper	**June**	**3,172**	**-0.6**	**38,238**	**-1.7**
Unbleached kraft paperboard	June	1,672	-0.5	20,140	1.2
Semichemical medium	June	467	0.0	5,644	-0.5
Bleached paperboard	June	381	1.3	4,592	1.6
Recycled paperboard	June	763	3.4	8,914	-1.3
Total paperboard	**June**	**3,282**	**0.6**	**39,291**	**0.4**
Total U.S. paper and paperboard output	**June**	**6,454**	**0.0**	**77,529**	**-0.6**
PULP, WASTEPAPER & FIBER[2]					
Total U.S. woodpulp production	May	5,162	0.1	63,307	1.6
Market pulp production	May	708	1.4	9,011	5.5
Wastepaper consumption at paper/board mills	May	1,763	-2.1	21,161	2.6
Pulpwood consumption (cords)	May	8,108	-0.1	99,494	0.2
CONVERTED PRODUCTS STATISTICS[3]					
Corrugated box shipments (billion ft²)	June	25.739	-2.9	156.832[6]	-2.0
Containerboard inventories at U.S. box plants and mills	May 1	2,883	11.2		
INTERNATIONAL TRADE[2]					
U.S. paper imports (including products)	May	1,008	-8.4	12,256	-7.6
Imports of Canadian newsprint	May	646	-9.9	7,740[6]	-9.0
U.S. paper exports (including products)	May	698	27.6	8,143	19.5
Exports of unbleached kraft linerboard	May	260	28.7	3,066	16.5
Exports of woodpulp	May	576	30.0	6,396	11.5
Norscan pulp inventories[4]	June 30	1,611	15.3		
Norscan pulp operating rates[4]	June	86%	85%	84%	89%
CANADIAN STATISTICS[5] *(reported in metric tons)*					
Total newsprint shipments	June	719	-10.6	4,370[6]	-7.8
Operating rates	June	85%	89%	89%	95%
Inventories held by U.S. consumers	June 30	1,410	7.1		
Other paper/board shipments	June	612	-1.3	3,576	-3.2
Woodpulp shipments (export only)	June	717	10.1	4,168	9.5
Operating rates	June	89%	84%	89%	89%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

Uncoated groundwood: Grade's movements reflect nature of marketplace extremes

Grade structure: In recent years the dividing line between newsprint and low-end uncoated groundwood paper has become increasingly fuzzy because of their similar physical properties. This is particularly true of rotogravure newsprint (rotonews), which is being replaced on the low end by high-brightness newsprint and from above by machine-finished and supercalendered (SC) grades.

The distinction is that uncoated groundwood paper has a higher brightness level and smoother surface than newsprint. Supercalendering adds gloss to compete with lightweight coated (LWC) groundwood paper. Brightness levels range from 64 to 74 Elrepho, compared with 56 to 62 for standard newsprint and 68 to 84 for LWC. Basis weights range from 20 to 45 lb/3,300ft². Primary uses for uncoated groundwood paper include preprinted newspaper inserts and direct mail flyers, catalogs, lower-cost business forms, Sunday newspaper magazines, and telephone directories.

Production/capacity: The advancing age of many newsprint machines has prompted some papermakers to convert those machines to uncoated (or coated) groundwood, a higher-value grade. In addition, some companies have built new machines, primarily for SC paper. This has helped push North American production to higher levels. U.S. mills shipped 1.768 million tons of uncoated groundwood papers in 1990, up 1.1% from 1989, which was itself 8% higher than 1988. The small growth in 1990 was due in large part to the economic recession, which caused a drop in advertising, and the postal rate increase, which saw catalogers cut the number of issues, size of press runs, and catalogs' physical sizes to save money. Because of Canada's ranking position in newsprint, that country also led in uncoated groundwood paper, but the U.S. is closing the gap.

Canadian uncoated groundwood shipments advanced just under 6.0% in 1990 from 1989, to reach 2.076 million short tons.

Canadian uncoated groundwood capacity increased 11.6% (to 2.312 million short tpy) in 1990, following a 14.3% increase in 1989. Capacity is projected to rise another 6.9% in 1991, largely due to a new machine online at Stone-Consolidated Inc.'s Grand'Mère mill. U.S. capacity rose 2.7% in 1990 to 1.924 million tpy and is expected to drop by 4,000 tons in 1990.

No significant expansion has been planned in the next few years. Daishowa America Co. Ltd. has delayed a new 150,000-tpy directory paper machine in Port Angeles, Wash., but is putting in deinking facilities to make recycled-content paper. Lake Superior Paper Industries is studying a second 220,000-tpy machine. Cascades Inc. may build a 210,000-short-tpy machine at Port Cartier, Que., and Madison Paper Industries postponed a 170,000-tpy expansion of SC paper at its Madison, Maine, mill.

Outlook: Consumption of uncoated groundwood paper in the U.S. is estimated to rise 3.4%/year through 2000. European mills continue to add capacity, possibly indicating additional growth in U.S. market share.

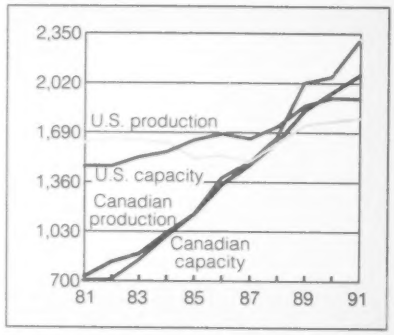
Supercalendered paper demand is expected to grow at 6.7%/year through 2000, compared with 1.0% for directory paper, a loss of 4.5%/year for forms, and 1.2% growth for other groundwood grades.

Prices: Price increases announced in 1990 fell victim to the declining economy and the Gulf War, even though demand for premium SC stayed relatively strong.

Prices (year-end, except 1991) for 34-lb premium supercalendered ($/short ton) are as follows: 1988, $830; 1989, $830; 1990, $830; mid-year 1991, $830 (selling at $800).

Prices for 35-lb offset, 65 brightness are as follows: 1988, $675; 1989, $655; mid-year 1991, $655 (selling at $600). For 15-lb, 65-brightness forms prices were as follows: 1988, $720; 1989, $700; mid-year 1991, $560.

SUPPLY/DEMAND (000 tons)



FORECAST (000 short tons)

U.S.	1991e	1990r	1989r
Production	1,788	1,768	1,743
Capacity[1]	1,920	1,924	1,874
Utilization rate	93.1%	91.9%	93.0%
Imports	2,439	1,338	1,304
Exports	87	75	88
Apparent U.S. consumption			
000 tons	4,140	3,031	2,959
lb/capita	32.95	24.37	24.04
000 tons/$ billion real GNP (1982)	0.98	0.73	0.72
Canada[2]			
Production	2,076	1,959	1,840
Capacity	2,312	2,072	2,032
Exports	1,729	1,695	1,527
Utilization rate	89.8%	94.5%	90.6%

e = *Pulp & Paper* estimate. r = Revised.
1. American Paper Institute.
2. Canadian Pulp & Paper Assn.

TOP NORTH AMERICAN PRODUCERS

	Annual capacity[1]	Market share
1. Stone-Consolidated	490	11.6%
2. MacMillan Bloedel	460	10.9%
3. Abitibi-Price	440	10.4%
4. Canadian Pacific Forest Products	420	9.9%
5. Champion International	355	8.4%
6. Georgia-Pacific	270	6.4%
7. St. Marys Paper	270	6.4%
8. Boise Cascade	265	6.3%
9. Lake Superior Paper	240	5.7%
10. Kruger	237	5.6%

Market share of top five companies: **51.2%**

Market share of top ten companies: **81.51%**

North American capacity (1991): **4,232 million tons**
U.S.: 1, 920; Canada: 2,312

1. Figures are in 000 short tons.

SALES AND EARNINGS

U.S. paper industry profits halved again

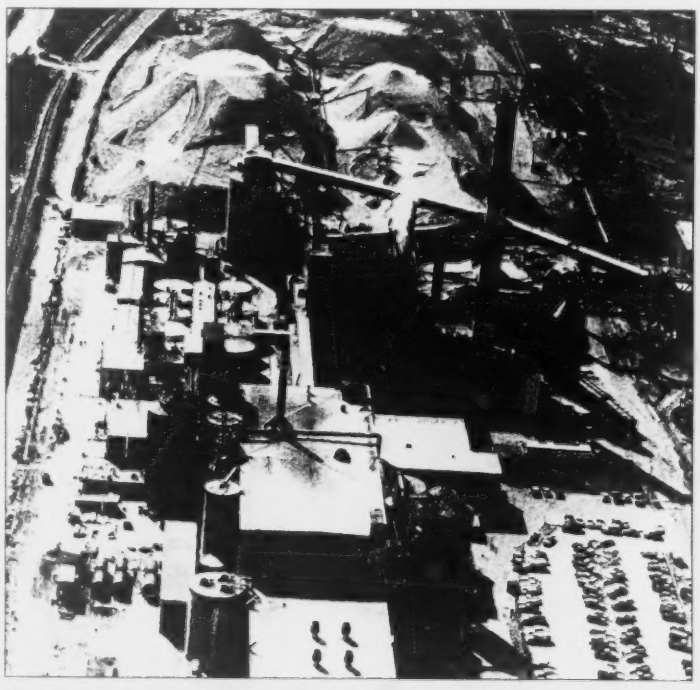
Given the current recession, it comes as no surprise that a *Pulp & Paper Week* survey of 31 U.S. forest products manufacturers shows a 53.1% decline in earnings to $600.6 million in the second quarter ending June 30, 1991, compared with the same period in 1990. Total sales revenue was off 5.7% to $23.3 billion. Among the major companies, Boise Cascade Corp. suffered the heaviest loss, with net income from operations at Stone Container Corp., Champion International Corp., Georgia-Pacific Corp., and also Chesapeake Corp. hovering near break-even levels. Producers are hoping that a general economic recovery later in the third quarter will get volumes moving again and perhaps lead to improved pricing in some grades. Industry profits declined 54% in first-quarter 1991 compared with that period a year earlier.

Wood products provided the only bright spot in the second quarter, with prices surging for lumber and plywood as the heavy rains drenched the Southeast and the federal government banned logging on 66,000 acres of forest in the Pacific Northwest pending completion of a plan to save the endangered spotted owl. But the gains in wood prices were more than offset by weak paper and packaging markets. On Wall Street, paper industry stocks had enjoyed some strength as investors bid up shares in anticipation of a cyclical recovery. But analyst Chad Brown of Merrill Lynch warned that some stocks appeared vulnerable as the earnings recovery in market pulp, newsprint, and linerboard may be somewhat more modest than previously expected.

Big three hold ground. International Paper Co. again led the industry in sales, with $3.1 billion in the second quarter. After having held up relatively well in 1990 and first-quarter 1991, profits tumbled 44% in the second quarter as the company suffered from poor uncoated paper and linerboard markets. IP's European operations held their ground, but as the economy weakens on the continent, income will be hurt modestly.

Helped by a $29-million gain on the sale of timberlands, Georgia-Pacific reported net income of $33 million in the second quarter vs $107 million in the year-ago period, but *P&PW* did not include the sale in its earnings summary. Most of the damage for G-P occurred in pulp and paper operations, which saw profits of $110 million in the second quarter compared with $261 million in 1990.

"Pulp and paper markets weakened during the second quarter, but there are some encouraging indications business is beginning to improve," noted G-P CEO T. Marshall Hahn Jr. This is also true for G-P's building-products business, which already showed signs of improving during the second quarter. Improvement hinges, however, on a general economic recovery. In the meantime, the company said it generated free cash flow of $40 million for the three-month period and reduced total debt by about $30 million. As an indicator of the company's strategic focus, G-P ran a full-page advertisement in the *Wall Street Journal* in July emphasizing free cash flow as a better measure of corporate performance than earnings. A 65% decrease in pulp and paper operating earnings compared with second-quarter 1990 undid improvements in Weyerhaeuser Co.'s newsprint and bleached paperboard units, the company said. A relatively high level of scheduled maintenance downtime also contributed to a 39% decline in earnings, although forest products results were up 20% for the quarter, with wood products showing a significant improvement (*P&P*, June 1991, p. 31). Bleached paperboard showed a strong performance for several pro-



Over 300 members of the Pulp, Paper, & Woodworkers of Canada were locked out of Celgar Pulp Co. in Castlegar, B.C., the company's response to more than a week of job actions by the union workers. The lockout has stopped a project started in February to double the mill's capacity by 1993. See story on page 41.

ducers in the quarter, with prices raised 5% in June and evidence that the increase was holding.

Paperboard doldrums. Stone Container reported a small $300,000 loss compared with a gain of $29.5 million in second-quarter 1990, due to lower selling prices for most of the company's products. Its Canadian newsprint operations are taking a severe beating. Stone-Consolidated Inc. incurred a restructuring charge of $6 million in the quarter, partly offsetting a $17 million gain from an accounting conversion relating to a boiler explosion at Missoula, Mont. In late June, Stone announced a "partial price restoration" for linerboard to $380/ton, but some analysts doubt it will be successful, as current tightness in the market is partly due to maintenance downtime and temporary mill shutdowns.

Other board producers who suffered in the second quarter include Union Camp Corp., which was also impacted by weak pricing in its white paper markets and higher depreciation and interest charges related to its three-year, $2.4-billion expansion and modernization program (*P&P*, August 1991, p. 31). Temple-Inland Inc. said its containerboard group suffered a 65% drop in operating earnings to $14.2 million compared with 1990, although containerboard production and box shipments were up from the previous year. The company's Financial Services earned $17 million, up 13% from 1990, with a total portfolio of $6 billion. In late July, Temple-Inland's two thrifts jointly acquired the failed Southwest Federal Savings Assn. of Dallas, Texas, a move that more than doubles the size of the group. Financial Services netted Temple-Inland $503 million of total revenue of $2.4 billion in 1990.

Gaylord Container Corp. reported a $125.5-million loss for the quarter ending June 30, 1991, compared with a loss of $6.9 million for the same period last year. In a press release, Gaylord said that the loss was magnified by the $101.2-million after-tax writedown of assets for the company's idled Antioch, Calif., East Mill. Besides the $125.2-million charge for the asset write-down, the company blamed the lower primary and converted selling prices and changes in product for a negative impact on operating earnings of about $15 million. Its pretax earnings were also adversely affected by a $7.1-million rise in the net interest expense, according to the company.

U.S. paper/products industry results.

Companies	Second-quarter 1991 ($000) Sales 1991	% change 1991/90	Earnings[1] 1991	% change 1991/90
Badger Paper Co. Inc.	$16,620	−14.7%	$955	−0.9%
Boise Cascade Corp.	977,870	−6.9	(32,560)	NM
Bowater Inc.[2]	326,196	−4.7	20,244	−12.9
Champion International Corp.	1,178,464	−6.5	4,529	−92.9
Chesapeake Corp.	218,829	−1.8	2,431	−67.6
Consolidated Paper Inc.	220,984	−7.1	24,553	−35.5
Federal Paper Board Co. Inc.	346,200	9.1	24,600	−28.9
Fort Howard Corp.[2]	292,953	0.3	(19,463)	NM
Gaylord Container Corp. (3rd Q)[2]	163,700	−4.9	(24,000)	NM
Georgia-Pacific Corp.[2]	2,981,000	−15.3	4,000	−96.3
P.H. Glatfelter Co.	135,147	−13.9	17,531	−21.3
International Paper Co.	3,100,000	−3.1	104,000	−43.8
James River Corp.[2]	1,169,085	−18.9	22,668	−56.6
Kimberly-Clark Corp.[2]	1,687,800	4.7	123,200	−1.0
Longview Fibre Co. (4/30)	158,106	−3.2	3,279	−78.9
Louisiana-Pacific Corp.	485,000	−3.3	29,200	−23.2
Mead Corp.[2]	1,176,500	−4.2	18,700	−65.2
Mosinee Paper Corp.	46,440	−11.9	(371)	NM
Pentair Inc.	283,835	−3.8	8,881	26.0
Pope & Talbot Inc.[2]	130,727	−9.1	1,798	−79.0
Potlatch Corp.	316,575	−1.5	11,770	−63.6
Scott Paper Co.	1,209,200	−7.6	30,500	−59.1
Sonoco Products Co.	422,235	0.4	22,385	−18.8
St. Joe Paper Co.	144,319	−2.6	6,352	−38.9
Stone Container Corp.[2]	1,327,200	−7.2	(300)	NM
Temple-Inland Inc.	618,300	5.3	40,600	−38.2
Union Camp Corp.	730,689	2.2	29,873	−48.9
Wausau Paper Mills Co. (5/31)	88,222	0.0	8,248	41.2
Westvaco Corp. (4/30)	557,914	−4.3	35,775	−22.2
Weyerhaeuser Co.	2,296,621	−4.0	69,628	−39.1
Willamette Industries Inc.[2]	494,853	0.7	11,564	−73.5
Total	**$23,301,584**	**−5.7%**	**$600,570**	**−53.1%**

1. Income after taxes, from continuing operations. 2. **Bowater:** 1991 earnings do not include an extraordinary charge of $9 million to retire outstanding debentures. **Fort Howard:** 1990 operating income includes a special charge of $8.75 million related to an employee stock compensation plan and terms of an agreement with the company's former CEO. **Gaylord Container:** Does not include after-tax writedown of $101.2 million for assets, including permanent closure of the Antioch, Calif., East mill. **Georgia-Pacific:** 1991 earnings do not include an after-tax gain of about $29 million on the sale of 49,000 acres of timberland in Washington. **James River:** 1991 earnings include net charge of $3.2 million. 1990 results include protax gain of $51.6 million on sale of nonwovens division, and a pretax charge of $62.9 million related to "discontinuation of unprofitable operations and other nonrecurring items." **Kimberly-Clark:** 1990 results do not reflect loss of $44 million for disposal of Spruce Falls Power & Paper mill. **Mead:** 1990 results do not reflect loss of $7.7 million for discontinued operations. **Pope & Talbot:** 1990 results include gain of $1.5 million on sale of timberlands. **Stone Container:** 1991 earnings include a $17-million pretax gain from an accounting conversion related to the replacement of equipment following a boiler explosion. **Willamette Industries:** 1991 results include charge of $1.9 million from the closing of an Oregon plywood plant.
( ) = losses. NM = not meaningful.

White papers at the bottom. Although price increases have been announced for cut-size and forms bond papers, major damage was inflicted on printing and writing paper manufacturers in the first half of the year. A $32.5-million loss in the second quarter brought Boise Cascade's total losses in 1991 to $49.4 million, compared with a gain of $56.6 million in the first six months of 1990. Hit hard by price cuts, Boise said its paper and paper products segment reported its first operating loss ever, as prices for uncoated white paper declined an average of 16% in the second quarter. The company was aided by higher wood products prices, but, unfortunately, high woodchip costs continued to have a negative effect on the cost of producing pulp and paper in the Pacific Northwest.

Champion International was rav-

aged by lower prices for its coated grades, as substantial capacity came online in the midst of weak demand, while publication papers, newsprint, and market pulp operations also remained in the doldrums. Champion produces 10% of all U.S. uncoated free-sheet and 14% of coated free-sheet, and the company's operations in Canada and Brazil continued to drain earnings. Westvaco Corp. said the adverse financial impact of its Brazilian operations accounted for 11% of the 16% decline in its quarter ending Apr. 30. Price declines for coated publishing paper were partially offset by increased shipments, said Mead Corp., which also enjoyed improved operations at its publishing papers mill in Escanaba, Mich. The largest U.S. newsprint producer, Bowater Inc., enjoyed increased newsprint exports in the second quarter, posting results that were a bit better than expected. But the third quarter may hold a further 7% reduction in newsprint prices and a 10% decline in market pulp prices, reported Dean Witter Reynolds' analyst Evadna Lynn.

Tissue troubles. Record high marketing expenses to introduce "new or improved" consumer products in the U.S. and Europe ate into Kimberly-Clark Corp.'s earnings, with advertising and promotion expenses accounting for 17.8% of sales in the second quarter, compared with 14.7% at the end of last year. Producers, including K-C and Procter & Gamble Co., recently dropped the list price and the sheet count of premium bathroom tissue and will presumably reduce promotional activities, such as coupon offers to consumers. Decreasing pulp prices came to the aid of many tissue makers, and international operations proved to be a boost to income. K-C cited a strong performance from its Mexican affiliate, while Scott Paper Co. singled out U.K. operations and its joint venture with Feldmühle AG for its 80% rise in European earnings.

Scott Paper was weighed down by its struggling S.D. Warren Co. printing and publishing papers business, which suffered a 12% drop in sales in the quarter, with income down 90% compared with the same period in 1990. Results from James River Corp.'s European tissue ventures were significantly improved, the company said, but the competitive U.S. retail premium tissue markets and "persistent" softness in commercial tissue markets made for the difficult conditions. ■

Canadian earnings worsen

Canadian pulp and paper industry losses in the current market downturn appear even worse than the red ink manufacturers spilled in 1982, according to most industry observers. A *Pulp & Paper Week* survey of earnings for 19 Canadian forest products companies revealed a whopping loss of C$263.3 million in the quarter ending June 30, compared with a loss of C$108.9 million in the second quarter of 1990. Only four of the companies surveyed showed any profit. While many observers had predicted serious losses for the quarter, the depth to which profits have fallen at some of the major Canadian companies startled even some seasoned analysts. Sales in the quarter declined 11.2% from C$6.2 billion in 1990 to C$5.5 billion in 1991 among the companies surveyed.

"We have had to curtail production of all our major products in varying degrees due to market conditions," said Bob Findlay, CEO of MacMillan Bloedel Ltd., which shut down several wood products plants and felt downtime in containerboard, pulp, and newsprint. "These types of decisions are painful," Findlay added, "but necessary if the company is going to remain competitive."

Comparisons with the recession in 1982 are common, with analysts noting that prices and demand have fallen faster and deeper in the current down cycle, but conditions are mitigated by interest rates that, although high, are considerably lower than in the early 1980s. Other positive factors include somewhat lower debt within the industry than in 1982 and the potential to bounce back quickly as the drop in capital expenditures translates into a drop in capacity expansion. Debt/equity ratios are better, noted Price Waterhouse analyst Mike MacCallum, and share prices in Canadian forest products companies are the highest they have ever been as investors look beyond the present economic quandary. Several Canadian companies are taking advantage of it by making share offerings and raising much needed cash. Unlike the early and mid-1980s, Canadian manufacturers are currently vexed by a climbing Canadian dollar, which hovered above US86¢ for a significant portion of the second quarter. Low-return environmental projects remain a costly development in recent years. The current downturn is at least "as bad as 1982," MacCallum said. "But the industry is in better financial shape to withstand the recession," he added.

No relief in East. Canadian paper manufacturers in the eastern provinces have been hit especially hard, with the worst decline in newsprint markets in 15 years. From an eastern perspective, the current recession will certainly be worse than in 1982. Abitibi-Price Inc. continued to wallow in red ink, with another restructuring charge further reducing meager operating profits. The company reported a net loss of C$5.7 million in the second quarter, compared with a loss of C$3.7 million in the same three months in 1990.

"We're not sitting still while all this is going on," said Abitibi's investor relations manager, Robert J. Tait. The company is making headway in reducing costs, he added, as part of "a fundamental change in the industry in order to be competitive."

Domtar Inc. reported a net loss of $37 million on a 23% decline in overall sales. Sales of newsprint, groundwood specialties, and market pulp dropped 9% to C$100 million, while sales of fine paper plummeted 21% to C$164 million in the quarter, the company said. Operating losses in those areas totaled C$26 million. Sales in the packaging division fell 14% in the quarter to C$101 million, and operating profit fell to C$2 million from C$6 million in second-quarter 1990.

Packaging products showed slight improvement for Canadian Pacific Forest Products Ltd., with firming demand late in the quarter offsetting lower prices, although plans remain to sell off the business. CP Forest posted a severe C$56-million loss in the quarter, with losses over C$100 million in the first six months of the year, as the company experienced "deteriorating market conditions in all business sectors." Downtime in the paper markets added pressure on pulp demand, delivering a one-two punch to several producers. Capital spending at CP Forest for the first six months of 1991 was C$233.3 million, up from C$214.5 million in 1990. In contrast, capital spending at Noranda Forest Inc. dropped 45% to C$152 million in the first six months of the year, reflecting the "minimum required to maintain operations," the

company said. The company lost C$42 million in the quarter, with total losses at C$80 million so far this year.

Mess in the West. Improvement in lumber prices came as a welcome sign to western forest products companies, but the good news was tempered by rising labor costs and the stronger Canadian dollar. Fletcher Challenge Canada Ltd. posted one of the largest losses in British Columbia, reporting a second-quarter loss of C$16.5 million compared with a gain of C$37 million in 1990. The company's CEO, Ian Donald, said pulp prices by the end of the quarter were down US$240/metric ton from the same time last year. The company's U.S. subsidiary, Blandin Paper Co., continued to face weak markets for its lightweight coated paper, Donald said, though he hopes that antidumping charges against European producers may help shore up demand in the latter half of the year.

MacMillan Bloedel, which has performed reasonably well over the current down cycle, reported a net loss of C$11.3 million, compared to profits of C$28.8 million in second-quarter 1990. The company, which was one of the worst hit in the 1982 downturn, shut its linerboard operation in Alabama for a month as part of a capital program to improve quality and expand recycled fiber use. Canfor Corp. lost C$15.7 million in the second quarter as losses in pulp outweighed gains in lumber. During the quarter, the company invested C$50 million in preferred shares of its Howe Sound Pulp & Paper Ltd. joint venture. The boost in lumber prices may be short lived, according to Weldwood of Canada Ltd., part of Champion International Corp., although June figures revealed rising U.S. housing starts. With its Caribou Pulp & Paper joint venture and its Hinton, Alta., mill improving operations, Weldwood managed to squeak out a profit in the second quarter but said it does not expect these positive factors to continue into the third quarter of this year.

Tissue tightens. The other Canadian paper manufacturers that managed to turn a profit in the otherwise dismal quarter were small tissue makers in both the East and West. Competition in the tissue market is intense, companies reported, with capacity increases beginning to affect both pricing and volumes. The entry of Procter & Gamble Co. into the Canadian market through its acquisition of CP Forest's Facelle business will further increase competition. But, despite its 11% decline in sales revenue, industry leader Scott Paper Ltd., based in Vancouver, B.C., again managed not only some profit, but a 0.5% improvement over earnings in second-quarter 1990, helped by declining pulp prices. Cascades Inc. of Quebec turned a 2.4% increase in sales into earnings of C$2.6 million, a decline of 48% from year-earlier results. The Port Cartier, Que., pulp mill was a serious drag on earnings, but a temporary shutdown in the second quarter should reduce some of its losses in the coming months, Cascades said.

Perkins Papers Ltd. of Laval, Que., holding a 4% share of the Canadian tissue market, also showed profit, though results were down 43.5% from second-quarter 1990. By tripling capacity at its Candiac, Que., mill this year to 70,000 tpy, Perkins will become Canada's third-largest tissue maker, climbing past Kimberly-Clark Canada Ltd. and Cascades and possibly garnering a market share of 10%. ■

Canadian paper industry results.

Companies	Second-quarter 1991[1] Sales 1991	% change 1991/90	Earnings 1991	Earnings 1990
Abitibi-Price Inc.[2]	C$729,700	−9.1%	C$ (5,700)	C$ (3,700)
Canadian Pacific Forest Products Ltd.	532,800	−15.7	(56,400)	6,600
Canfor Corp.[2]	214,000	−9.6	(15,700)	30,500
Cascades Inc.	204,025	2.4	2,591	5,049
Crestbrook Forest Industries Ltd.	42,192	−25.6	(3,351)	3,532
Dorman Industries	142,349	−5.7	(10,379)	2,916
Domtar Inc.	468,000	−9.8	(37,000)	29,000
Donohue Inc.	125,400	−20.9	(3,800)	5,900
Fletcher Challenge Canada Ltd.[2]	269,500	−9.8	(16,500)	37,000
MacMillan Bloedel Ltd.	727,900	−9.8	(11,300)	28,800
Noranda Forest Inc.	1,085,000	−11.6	(42,000)	(4,000)
Perkins Paper Ltd.	36,644	−2.1	974	1,726
Repap Enterprises Inc.	283,900	−7.1	(34,600)	4,200
Rolland Inc.	76,160	−27.0	(1,360)	2,088
Scott Paper Ltd.	105,060	−10.7	3,213	3,198
Slocan Forest Products	56,000	−7.0	(133)	1,900
Tembec Inc. (3rd Q)[2]	65,219	4.6	(31,933)	4,539
Weldwood of Canada Ltd.	193,700	1.7	100	6,800
West Fraser Timber Co.	151,400	1.3	(34)	5,100
Total	**C$5,508,940**	**−11.2%**	**C$(263,312)**	**C$108,972**

1. Income after taxes, from continuing operations. 2. **Abitibi-Price:** 1991 income includes C$20-million charge related primarily to restructuring. 1990 results include a C$28.9-million charge. **Canfor:** 1990 results include an aftertax gain of C$26.2 million from the sale of assets. **Fletcher-Challenge:** 1990 results include a C$20.7-million gain on the sale of a plant. **Tembec:** 1991 results include a C$32.1-million pretax charge related to a writedown of capitalized startup costs and deferred charges by 50%-owned Temboard Ltd.
( ) = losses

NEWSPRINT

Boise finds partner for recycled newsprint project

Boise Cascade Corp. said early last month it had found a joint-venture partner for a recycling project at its 560-tpd West Tacoma newsprint mill in Steilacoom, Wash. The company would not disclose the name of the partner in the $50-million project, saying the party did not want to be identified. Boise announced last week that it had selected Harnischfeger Industries' Beloit Corp. unit as the lead vendor for the project, with Beloit's Fiber Systems Div. providing the complete secondary fiber/deinking line equipment. Beloit's Project Management Group will design and install the recycling facility, to be built adjacent to the mill.

The facility will consume up to 300 tpd of old newspapers (ONP) and old magazines (OMG), producing 225 tpd of deinked pulp. Upon completion of the project in mid-1993, newsprint produced at West Tacoma will contain 40% recycled fiber, the company said.

U.S. firms dominate global industry survey

International Paper Co. continues to be the world's number one forest products company, and the industry as a whole is the tenth-largest global industry, according to *Fortune International*'s annual Global 500 survey. The world's top 26 forest products manufacturers had combined sales of $142.5 billion in 1990, and the world's number one industry, petroleum refining, totaled $941.8 billion in sales with 54 companies. In a global comparison, IP ranked ninety-fifth in sales at $13.0 billion in 1990 and two hundred and twenty-first in market value at $7.8 billion, *Fortune International* reported.

A worldwide recession continues to take its toll on the industry, the survey said, with return on sales falling from 5.3% in 1989 to 2.7% last year. The median for all industries was 3.3%. Return on assets fell from 4.5% in 1989 to 2.3% in 1990, compared with a median of 3.4%. Global profits in the industry tumbled 41.7% in 1990, the second worst performance, behind the rubber and plastics industry. Forest products sales rose 4.1% last year. Mergers were responsible for boosting several paper companies up in financial rankings, with the most notable growth experienced by Repola Oy of Finland, Stora AB of Sweden, and Georgia-Pacific Corp. ■

Global top ten forest products companies by sales, 1990.[1]

Company, country	Global ranking	Sales (US$ million)
International Paper Co., USA	95	$12,960
Georgia-Pacific Corp., USA	100	12,665
Stora, Sweden[2]	116	11,070
Weyerhaeuser Co., USA	147	9,024
Noranda Forest Inc., Canada	164	8,121
Fletcher Challenge Ltd., New Zealand	188	7,134
Kimberly-Clark Corp., USA	214	6,448
Repola Oy, Finland	239	6,040
Stone Container Corp., USA	242	5,770
James River Corp., USA	261	5,423

1. Includes only companies which have derived more than 50% of sales from manufacturing. Sales of consolidated subsidiaries are included. Figures converted into dollars using official average exchange rate during company's 1990 fiscal year. 2. Includes Feldmühle Nobel of Germany.
Source: *Fortune International*

SCA approves U.K. mill expansion

Svenska Cellulosa SA (SCA) of Sweden gave final approval to a new newsprint machine at the former Reedpack Ltd. newsprint mill in Aylesford, Kent, to lift capacity to 320,000 metric tpy from 80,000 metric tpy. SCA acquired the mill in June 1990, when it acquired Reedpack for $924 million, and the SK2.5-billion expansion project has been on the drawing board since late last year. Earlier this year, SCA-sold off Reedpack's Colthrop mill, the converting operations of Field Packaging, and its own Ortmann consumer tissue operations in Austria. Newsprint production in the U.K. increased 230,000 metric tpy late in 1989 with the start-up of Shotton Paper Co. Ltd., a subsidiary of Finland's United Paper Mills. This year, Abitibi-Price Inc. made the decision to withdraw from a 220,000-metric-tpy greenfield recycled newsprint mill it was planning to develop in Scotland.

The Aylesford mill currently has one paper machine, which dates back to 1958, and manufactures newsprint, lightweight newsprint, and 75,000 metric tpy of deinked pulp. The current operations also include a paperboard and converting mill with three operating machines. Before the recent SCA acquisition, Reedpack was developing plans to install a 240,000-metric-tpy, recycled-newsprint machine at Aylesford in a joint-venture project with Daishowa Forest Products Ltd., the Canadian subsidiary of the Japanese papermaker Daishowa Paper Manufacturing Co. Ltd. The mill is currently a unit of SCA Graphic Paper AB, a division of SCA Group. ■

Boise sells stake in Duropack venture

Boise Cascade Corp. agreed in July to sell its 50% stake in Duropack AG, a corrugated container manufacturer with two plants in Austria and one in Germany, to its Austrian partner in the joint venture, Constantia AG. Boise said it expects the gain on the $50-million sale will have a positive impact on its third-quarter results. Last year, Boise outlined plans to divest noncore operations and sold two corrugated container plants in the U.S. to Jefferson Smurfit Corp. For similar reasons, Georgia-Pacific Corp. sold its French corrugated packaging business to International Paper Co. last year. ■

First of three Chilean pulp projects finished

Chilean exports of pulp will more than double to 1.5 million metric tons from 1990 to 1992 with the startup of three major projects this year. Celulosa Santa Fe, a 230,000-tpy, bleached-eucalyptus pulp mill in Nacimiento, Chile, owned by Shell (60%), Scott Paper Co. (20%), and Citicorp (20%), started up in mid-April, confirmed a spokeswoman at Scott Paper in Philadelphia, Pa. The partnership purchased the troubled, half-finished project in 1988 from Papeles Sudamerica. Additional work included expanding the Kamyr digester, adding oxygen delignification, and redesigning and expanding the mill's bleaching system. More than half of the output will be taken by Scott for its worldwide operations.

Celulosa del Pacifico, a joint venture between Cia Manufacturera de Papeles y Cartones SA (CMPC) and Simpson Paper Co., is progressing with its $587-million greenfield market pulp mill located near Angol, Chile. A Simpson spokesman confirmed that the 320,000-metric-tpy, bleached-softwood mill is expected to be in operation in the third quarter and was currently on schedule and on budget.

Celulosa Arauco y Constitucion SA's recently completed 350,000-metric-tpy, bleached-softwood pulp mill in Arauco, Chile, will begin operations this month or in October, somewhat ahead of schedule. The $600-million Arauco II project is next to the company's existing 20-year-old mill, which was expanded in 1989. ■

Project Cost Escalation Rate Slows as Companies Reduce Spending Plans

Equipment, engineering, and material costs for paper mill construction projects have stabilized, but labor costs are still rising

By KEN L. PATRICK, Editor in Chief

The escalation rate for capital project costs in the U.S. pulp and paper industry has slowed considerably during the past six quarters, according to a July 1989 through December 1990 capital cost trends study by BE&K Construction. The report, which covered almost all areas of an integrated pulp and paper mill from the woodyard through finishing and shipping, showed an overall cost increase of 6.2% for the study period, compared with more than twice that for the 1987 through 1989 period.

BE&K attributes the slowdown to a recently decreased demand associated with reduced capital expenditures. *Pulp & Paper* reports that capital spending in the paper industry this year will fall to around $14 billion after peaking at some $17 billion last year, following seven years of record spending by U.S. companies. Capital spending in 1992 is expected to decline further to $12.5 to $13 billion.

LABOR COSTS STILL RISING. The BE&K study showed that the previously high rate of escalation for mechanical equipment generally stabilized, while labor costs continued to rise. As Figure 1 reflects, construction on projects procured during 1988 and 1989 peaked in 1990, resulting in fairly high wage increases during the six quarters. Labor costs shot up 8% as a result, and the labor burden rose a dramatic 18.8% in response to "incentive plans and per diem payments designed to retain and attract workers in the construction work force, plus premium time expenditures designed to stretch the work force and maintain completion schedules," the study pointed out.

However, as project workloads have begun declining in the current fourth quarter, prices in the labor market have stabilized, "although demand will remain high for specialized welders and technicians. The shortage of skilled construction workers will continue, but peak demand experienced in 1990 has passed."

Material costs showed mixed results at a 3.9% escalation rate. Increases (which tended to offset the slight declines in metal costs) were due to two primary factors, according to the study—fabrication labor increases and increased fuel (transportation) costs that occurred immediately after Iraq invaded Kuwait. Mechanical equipment costs were effected by the high labor costs and only modest raw material price increases, resulting in a net escalation of 5.9%, which is slightly below the project average.

Engineering costs escalated at only 2.4%, the lowest of all categories. The report explained that this relatively small increase "illustrates the combined effect of

FIGURE 1: **The paper industry's rate of escalation has begun slowing down, with a July 1989 to December 1990 increase of only 6.2%, compared with more than twice that amount in the previous period. Labor and its associated labor burden increased more than other construction costs during the current six-quarter study.**

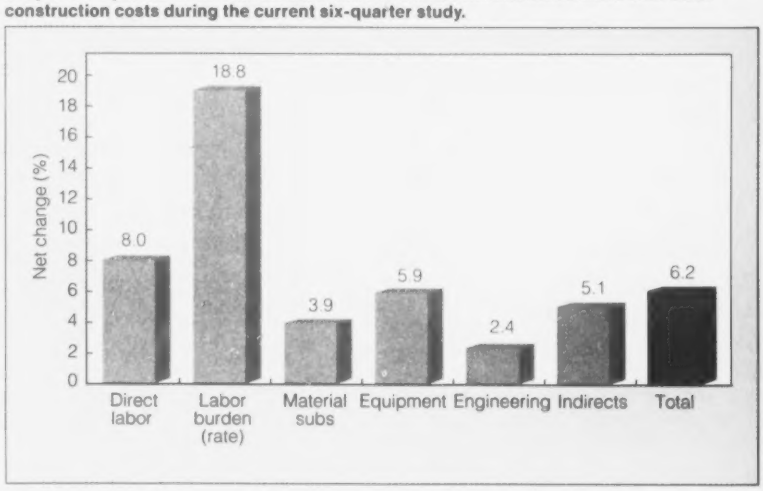
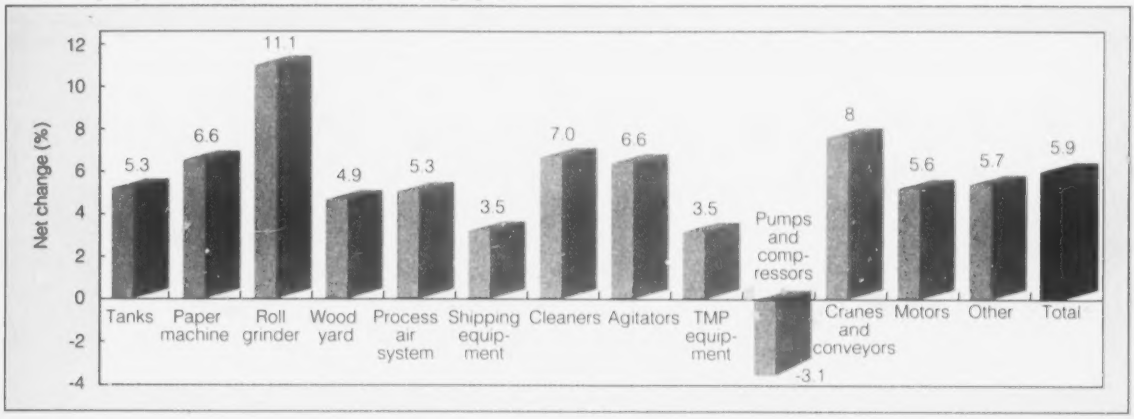


FIGURE 2: **Mechanical equipment price increases were mixed for the six-quarter period, with roll grinding equipment prices rising by 11.1% and pumps and compressors actually declining by 3.1%.**



modest wage increases and adjusted overhead and profit components. The overhead portion of engineering costs is increasing as fixed costs are spread over a smaller engineering volume. However, the profit component is decreasing as competition heats up for current work," it concluded.

NEAR-FUTURE OUTLOOK. Based on results of the study, BE&K believes demands on the construction labor market will continue declining through this year. "Since an immediate rebound in the other process industries and segments of the economy does not appear likely until 1992 or later, a softening of the labor market will be felt. Even though wages may remain constant, a reduction in the incentive portion of the labor burden will eventually result in a cost decrease," the report states.

As far as material costs are concerned, the decreases experienced in stainless steel should soon be followed by price drops for lumber products, steel, copper, and aluminum. Increases in material costs for 1991 should be less than 4%, and energy costs are expected to remain stable following a satisfactory resolution to the Gulf crisis.

Minimum wage increases for engineers and additional pressures on consultant companies to reduce profit markups are expected as demand for pulp and paper engineering services declines through the remainder of 1991 and into next year. As a result, engineering costs should remain stable, with minimal or no increases anticipated. However, engineering costs could increase somewhat as companies invest more in new 3-D computer design capabilities.

The shortage of engineering personnel experienced during the 1984-90 growth boom could be extended by two or three years. Increased competition will be felt for engineers to support expansion of other process industries and to help rebuild Kuwait.

EQUIPMENT AND MATERIAL COSTS. Figure 2 shows changes in 13 specific mechanical equipment prices from July 1989 through December 1990. During these six quarters, the cost of roll grinding equipment and cranes and conveyors increased the most, with 11.1% and 8% increases, respectively. While woodyard, shipping, and

FIGURE 3: **Concrete material prices fluctuated considerably during July 1989 to December 1990, with an overall modest increase of only 3%.**

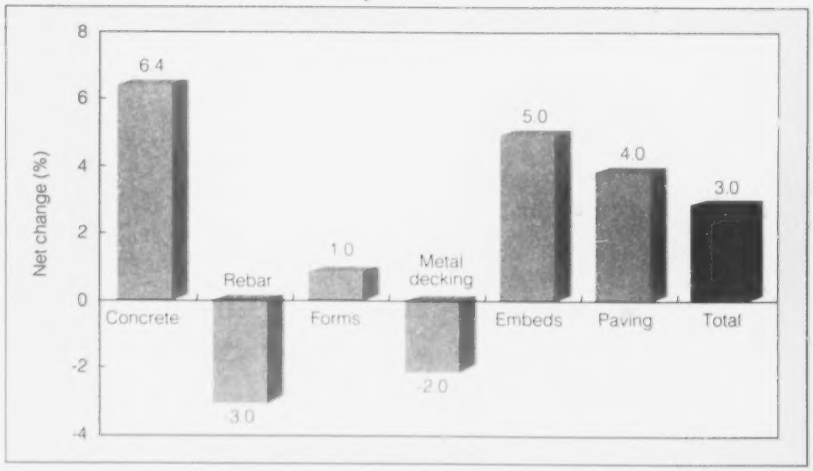
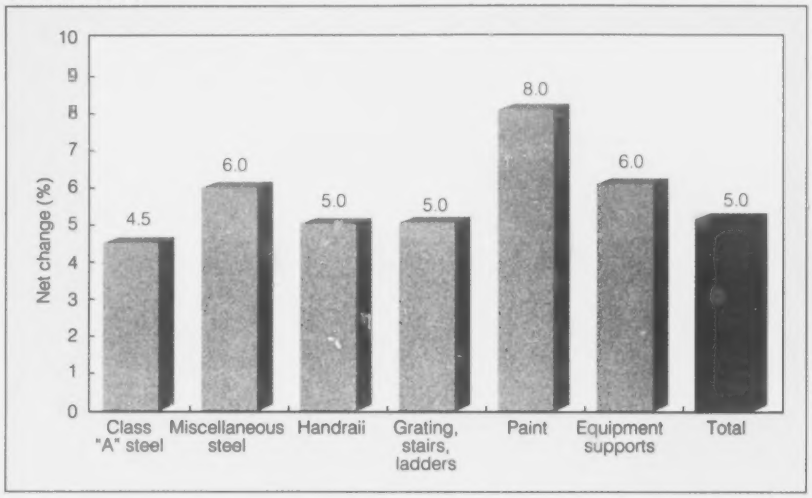


FIGURE 4: **Structural steel prices increased 5% during the study period, with paint prices rising the most to 8%.**



thermomechanical pulping equipment costs rose only moderately, pump and compressor prices tumbled 3.1%. Based on a 1985 base of 100, mechanical equipment in the paper industry has escalated to a current index of 148.

Concrete materials experienced considerable fluctuations during the period (Figure 3). While the price of concrete itself increased 6.4%, rebar and metal decking fell 3% and 2%, respectively. The cost of forms remained almost flat. Overall costs of concrete materials rose only a modest 3%. Using the 1985 base of 100, concrete materials have escalated to an index of 119.

Figure 4 shows that the cost of structural steel rose 5% during the six quarters of the study period. Leading the pack was paint at 8%, with the price of class "A" steel rising only 4.5%. On the 1985 base of 100, structural steel is currently at an escalation index of 126.

The overall price of piping materials rose only 0.5% during the six quarters (Figure 5). The key price decrease was for small-bore stainless steel piping, which fell a full 6% during the period. Large-bore carbon steel pipe prices increased 8.4% and hanger costs increased 6%, but otherwise, price increases were extremely moderate. For piping materials, the 1985 escalation index is currently at 143.

Costs for instrumentation materials (Figure 6) and electrical materials (Figure 7) rose 3% and 4%, respectively. Machine profile systems experienced the greatest increase among instrumentation materials at 4%, and prices for tube and tray material remained completely flat. Prices of electrical tray and instrument wiring materials both decreased 8% during the six quarters, and the cost of primary wiring rose 13%. The 1985-based escalation index for instrumentation and electrical materials is currently 126 and 142, respectively.

The prices of architectural sections and materials increased 6% overall (Figure 8). Siding went up 11% during the study period, while built-up roof costs remained flat. The 1985-based architectural index is currently at 128. ■

FIGURE 5: **Overall, the price of piping materials increased only 0.5% during the six-quarter study period. Small-bore stainless steel prices fell a full 6%.**

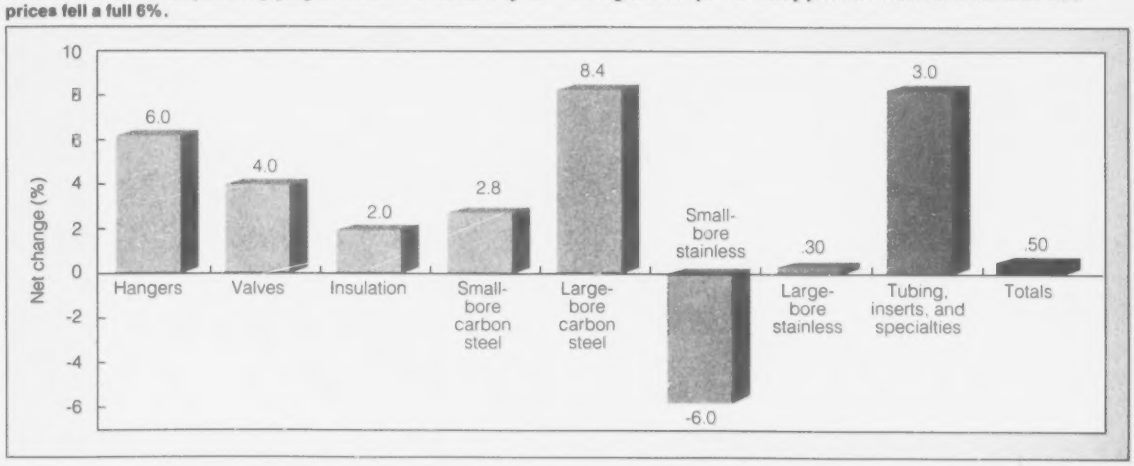


FIGURE 6: **Instrumentation costs were up only 3% during the current study, with machine profile systems increasing the most at 4%.**

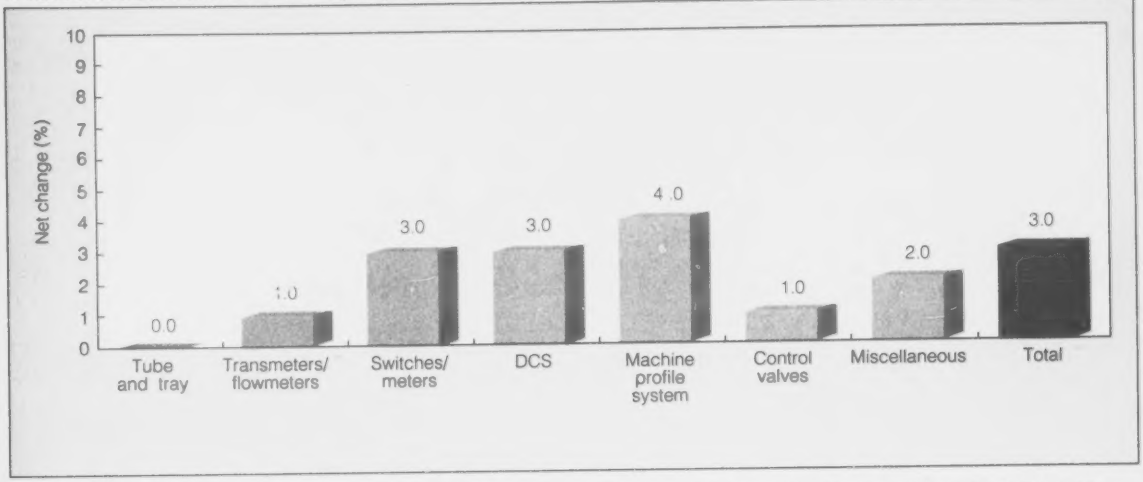


FIGURE 7: **Electrical material costs rose only moderately, even though primary wire was up 13%. The overall increase in this area remained relatively low due to major drops in tray and instrument wire prices.**

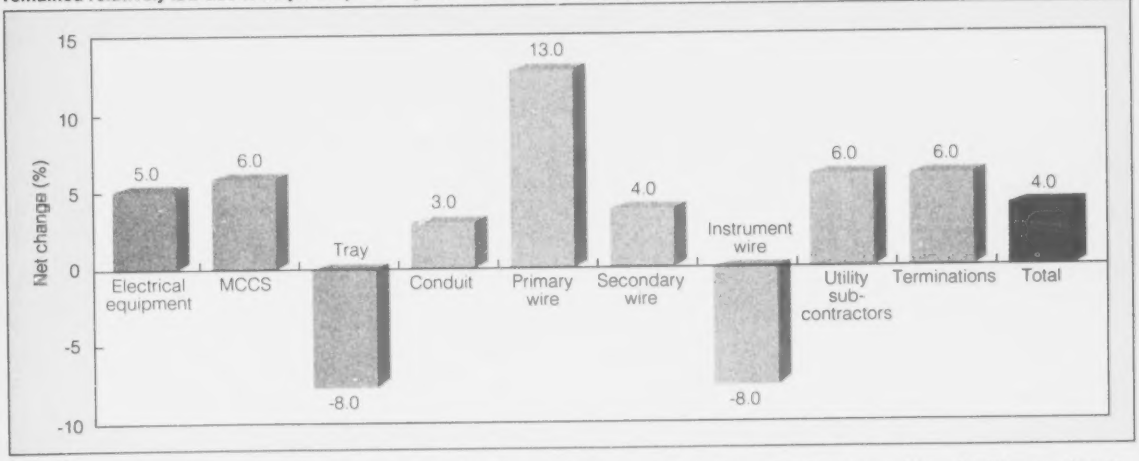


FIGURE 8: **Prices for architectural sections and materials increased 6% overall, with siding prices rising 11% and built-up roof costs remaining flat during the study period.**